

## Abstract

A method for triggering a heterodyne interferometer having two acousto-optical modulators in separate light paths, a receiver  
5 generating an analog signal and a downstream A/D converter converting the analog signal into a digital signal is described; in this method, the one acousto-optical modulator is triggered at a modulation frequency  $f_1$  and the other acousto-optical modulator is triggered at another modulation  
10 frequency  $f_2$ , the difference between modulation frequencies  $f_1$  and  $f_2$  forming a heterodyne frequency  $f_{\text{Het}}$  and the analog signal being converted into the digital signal in the A/D converter at sampling frequency  $f_a$ .

15 In such a heterodyne interferometer, a fixed ratio of modulation frequencies is maintained, and they are prevented from shifting due to aging and drift by forming at least two of the frequencies of modulation frequencies  $f_1$ ,  $f_2$  and sampling frequency  $f_a$  from a fundamental frequency  $f_{\text{quartz}}$  of a  
20 common oscillator.

As a result, it is also possible for sampling frequency  $f_a$  to be in a fixed phase ratio to the differential frequency of modulation frequencies  $f_1$ ,  $f_2$ , of heterodyne frequency  $f_{\text{Het}}$ .  
25 Measurement accuracy is increased because sampling is performed at a constant phase, independently of drift and aging.